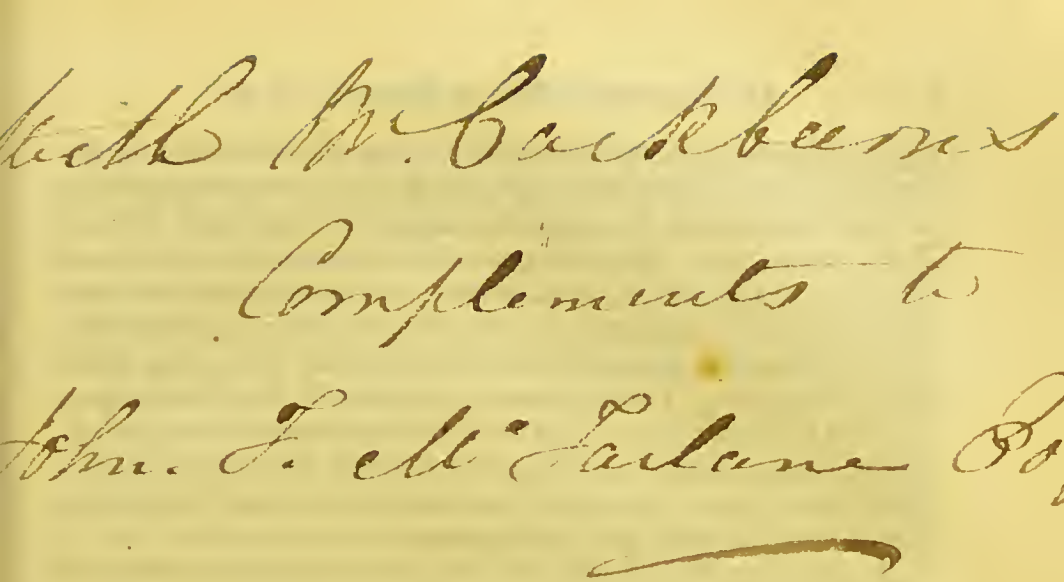

CASE

OF

IRRITATION OF THE CEREBRO-SPINAL AXIS,

CAUSING

MENTAL DERANGEMENT, TRISMUS, AND PALSY.

By Alexander Cockburn, Esq. Surgeon, R. N.

With Pathological Observations, by Dr Craigie.

(From the Edin. Med. and Surg. Journ. No. 129.)

On the 27th June 1835, I was requested by Dr Molleson (who was about to leave town for some time,) to visit Christina Ferguson, aged 25. She had been labouring under symptoms of an affection of the spine for nearly two years. And for the last eighteen months had been almost entirely confined to bed, having little or no power over the lower extremities. About a fort-

night previously, she was seized with a convulsive affection of the muscles of the neck and lower jaw, which, after continuing for three or four days, ended in complete *trismus* or spasmodic closure of the lower jaw. The affection of the spine had been treated by issues to the seat of the disease, which was about the last dorsal *vertebrae*, as also various internal remedies, with the view of improving her general health, but without producing much material benefit. I was given to understand, that, from a girl, she had been subject to *hysteria;* that her bowels were generally constricted, and the *catamenia* irregular, and since her present illness, more particularly so, and for the last five months, the uterine secretion had not appeared.

At the time when I first saw her, her countenance was pale and languid, her eyes were dull, with the pupils a little dilated. The pulse was about 90 and small, the skin natural. Since the jaw became locked, she fed herself with a teaspoon, at the right angle of the mouth, where she had lost some of her teeth. In this way she had been supported for the last ten days, with beef-tea, wine, &c. Her bowels not having been moved for two days, I directed two drops of croton oil to be given immediately. The beef-tea was continued, but the wine was omitted.

On the 28th, I was prevented from seeing her; but on the following day upon visiting her, I was much surprised to find her out of bed, dressed, and walking about the house, with the perfect use of her limbs, but in a complete state of mental derangement. Her sister, who slept with her, stated to me that, on the preceding day, which was Sunday, the family observed that she was very indifferent to their reading or conversing with her upon religious subjects, as formerly, and in the evening, while reading to her, she smiled and shook her head, and her behaviour was altogether quite different from what it had formerly been,—being very piously inclined.

On Monday morning about five o'clock, she got out of bed, dressed herself, pulled up the window, and was in the act of getting out at it, when her sister caught her. She became extremely violent, and resented every opposition to her wishes, by striking and throwing whatever came in her way at those about her. Upon finding her in this state I ordered her to be placed in bed and secured, the head to be shaved, and cold cloths applied to it, a blister to the nape of the neck, and a brisk purgative to be administered.

On the 30th, I found her up, and incapable of being kept in bed. She was indeed exceedingly restless, constantly moving from place to place; and had so much strength that it required two or three persons to hold her. My young friend, Dr Gordon, being with me, we had her secured in bed; and I direct-

R38184

ed a spoonful of the solution of tartrate of antimony to be given every second hour. The *trismus* continued the same.

July 2d. She had continued much the same since last report. Her relations were averse to her being put under restraint, so that she had been very little in bed. Her strength, however, continued unimpaired, and she was very violent towards those about her. Dr Abercrombie saw her with me to-day, and recommended the blisters to be continued to the head, and the bowels well purged with the croton-oil.

3d. The blister applied yesterday over the whole head had risen well; and the bowels had been fully opened. But the mental excitement continued unabated; the pulse was about 100, and small; and the pupils were much dilated, with strong maniacal expression. *Cont. medicamenta.*

July 8th. She had continued much the same since last report. The blistering and purging has been continued, but it is with difficulty she can be made now to take medicine, being apprehensive of being poisoned. Dr Atkinson of the H. E. I. Company's Service saw her with me to-day. She was in a high state of excitement, was sitting in a corner of the apartment with a pair of kitchen bellows in her hand, brandishing them at whoever came near her. I urged upon the friends the propriety of her being put in a strait waistcoat; but to this they would not agree. *Cont. medicamenta.*

On the 11th, I found her much quieter; still, however, out of bed, and her mind deranged. The blister is discharging copiously, and her bowels have been freely opened. To-day she was seen by Sir George Ballingall, who recommended the same treatment to be pursued. *Cont. medicamenta.*

12th. Last night as she became much exhausted, she was undressed and put to bed. She then fell into a sound sleep, and slept till seven this morning, when she awoke with her mind perfectly restored, recollected nothing of what had occurred, but supposed herself to have had a fever. She was still unable to move her limbs, and complained of general uneasiness over the whole body. The pulse was about 90, and soft; the skin moist; and the bowels open; but the *trismus* continued. She was ordered to have beef-tea, and to be kept quiet.

13th. Slept well during the night. The mind was perfectly restored, but she again lost the entire use of her limbs. The pulse continued about 90; bowels open. *Cont medicamenta.*

14th. To-day she was lifted out of bed to the sofa. She has no power or command over her limbs, and cannot stand without being supported on both sides. She takes beef-tea, and the bowels are kept open with croton oil. The spine is rubbed morning and evening with a strong stimulating liniment, and the lower jaw,

which still continues firmly locked, has been blistered on both sides.

26th. For the last eight days she has continued much in the same state, sitting up daily, but unable either to walk or stand without being supported. Her mind has been quiet and tranquil, but the *trismus* continues. To-day she is in bed, and complaining of headach. Her pulse is 90. The bowels have been rather confined.

A blister was applied to the neck, and a dose of croton oil was ordered to be given immediately.

27th. Last evening she insisted upon being out of bed; became perfectly deranged; rose, dressed herself, and has walked almost constantly about the house ever since. At present the pulse is 100. The pupils are much dilated. The bowels have been opened. The *trismus* continues.

A blister was applied over the whole head; and her attendants were directed to endeavour to keep her in bed.

28th. She has not been in bed these two nights; is highly excited and in constant motion, and most anxious to be out, to prevent which it was requisite to secure the doors and windows. The strength is most surprising. The pupils are much dilated; the pusle 110, and sharp; bowels open. The blister on the head has risen well. Another to be put along the spine.

29th. The blisters on the head and along the spinal column are discharging freely. The mental excitement is now a little abated. The pulse 96. *Rept. Ol. Croton, medicamenta.*

30th. She is much quieter to-day, but the mind is still deranged. The blisters are discharging copiously. The pulse about 100. The bowels open. My friend Dr Craigie, one of the Physicians of the Royal Infirmary, saw her to-day.

August 1st. She continues in bed, and the mental excitement is much abated. *Cont. omnia medicamenta.*

2d. Is quiet and in bed. The blisters still discharging. *Cont. medicamenta.*

3d. She is quite calm, but her mind is not yet restored to its proper state. The *trismus* continues, and she complains of great pain in applying any degree of force to separate the jaws. The pulse is 80 and soft, and the bowels are reported open. *Cont. omnia.*

4th. To-day she is perfectly collected, but feels much exhausted. *Cont. medicamenta.*

6th. She is much better; can move her limbs, and turn herself in bed, but when up she is unable to stand without support.

8th. She can walk a little to-day with assistance, but feels very weak. The pulse is 80. The bowels are opened. The *catamenia* appeared to day.

10th. The mind is perfectly restored. She complains of great debility, but walks through the room with assistance. *Cont.*

14th. She can open her mouth a little to-day. The *catamenia* disappeared on the 12th. *Cont. medicamenta.*

18th. Convalescent. *Cont. medicamenta.*

22d. She walks much more firmly, and can open her mouth to the full extent, but complains of pain and rigidity of the muscles of the lower jaw in masticating her food.

20th. Continues to improve; and I have recommended her going to the country, which she means to do in the course of a few days.

After remaining a few weeks in the country, she returned home quite well, and continues so till this time.

Edinburgh, March 1836.

Observations on the preceding Case, by Dr Craigie.

The case now detailed, which I saw with Mr Cockburn, though not singular, is, in many respects, highly important, more especially in illustrating the connection which is not unfrequently observed in young females between symptoms of hysteria and symptoms of irritation of the cerebro-spinal axis.

In the case of Christina Ferguson three classes of symptoms were presented.

1. She had been originally subject to hysterical symptoms, which there is good reason, from the subsequent course of the case, to believe proceeded from irritation of the spinal chord or its envelopes, or perhaps, to speak more to the fact, from a languid and inert state of the circulation within the rachidial vessels, and a consequent degree of congestion, which first irritated and then compressed slightly the spinal chord and the origins of the nerves. This state might either proceed from the previous disorder of the alimentary canal and its vessels and the splanchnic nerves, as I have elsewhere attempted to explain regarding these affections of the spinal chord and nerves, or might be simultaneous with it, and when once induced within the spinal chord, would, doubtless, contribute to aggravate greatly the torpor and insensibility of the alimentary canal.

2. The second class of symptoms were those of actual Spinal Irritation. These appear to have commenced when she was about 23 years of age, in the form of great sensibility and tenderness of the lower dorsal vertebrae, the usual seat of this extreme sensibility, and gradually proceeding to affect the mobility of the muscles of the lower extremities. That these symptoms and the subsequent loss of power depended on irritation rather than inflammatory disease of the spine or its parts or contents, I think it to be inferred not only from the subsequent history of the

case, but also from the state in which she was, when I saw her under treatment by Mr Cockburn. In the *first* place, the painful sensation was exactly at that part of the spine in which I have seen this increased sensibility take place in other patients, in whom the symptoms proved to be those of irritation only or neuralgia of the spine. (*Rachialgia.*) *Secondly*, the loss of power in the lower extremities appears to have been of that kind which usually attends spinal Irritation or *rachialgia*. When this loss of power arises from inflammation of the vertebral cancellated tissue or its *medulla*, or from disease of the capsules of the articular processes, it produces in general, first, impaired power of the extensors with involuntary drawing of the flexor muscles, and eventually very complete palsy of the lower extremities. There is, in short, first, a subversion of the antagonism, and then palsy afterwards. In general, on the other hand, when the impaired motion proceeds from mere irritation, it is a gradual but general loss of power affecting all the muscles, both flexors and extensors, at the same rate, and in a slighter degree than in the palsy from chronic inflammation of the medullary membrane or cancellated tissue of the bones. In the one case, the loss of power corresponds to the *paresis* or relaxation of the ancients; and in the other it is genuine *paralysis* and *paraplegia*. *Thirdly*, when I examined the back of Christina Ferguson in August 1835, the dorso-lumbar region presented no trace of any change in structure having taken place. There was neither depression, nor prominence, nor distortion; and, with the exception of morbid sensibility over the site of the lower dorsal *vertebræ*, there was nothing to indicate that there had been any serious disorder of the parts composing the spine or its contents.

The symptoms of spinal irritation appear to have continued for about eighteen or twenty months, and to have given rise not only to the gradually approaching loss of power in the trunk and lower extremities (*paresis*,) but to have aggravated if not induced, by a sort of reflected action, the torpid state of the alimentary canal and the intestinal secretions, and also the inert state of the uterine circulation, as indicated by the cessation of the menstrual secretion.

3. The third class of symptoms presented by this case was that of irritation of the cerebro-spinal axis. And in the existence of these symptoms, two circumstances deserve attention. The first is the transition of the symptoms of irritation of the spine into those indicating irritation of the whole cerebro-spinal axis; and the second is the extent to which the latter symptoms proceeded, and the form which they assumed.

On the first point, it is important so observe, that though the early symptoms of the disease, which continued from August 1833 to June 1835, were such as denoted chiefly an affection of the spinal chord and its investments, and perhaps principally of

the vessels of these parts, yet after this had continued for the space of twenty months, it evinced proofs of passing onward to affect not only the spinal chord more generally but the cerebral membranes and substance. The first indication of the more general affection of the spinal chord took place on the 12th of June, in the shape of spasmodic closure of the lower jaw. Though the tonic spasms never proceeded farther than this, yet the circumstance of their occurrence indicated most unequivocally the subversion of the antagonism in the muscles of this order; viz. the loss of power in the depressors or extensors, and the irritation inducing involuntary contraction in the levators or flexors. When I examined the jaw, it was interesting to observe the rigid contraction of the temporal, and especially of the masseter, muscle on both sides, and even in some degree of the buccinators, and the complete inadequacy of any extending force to separate or depress the lower jaw.

It is here important to observe the pathological reason of this tetanic affection of the flexor or levator muscles of the lower jaw appearing exclusively, and without more general affection of other muscles of voluntary motion. It is manifestly dependent upon the anatomical fact, that the temporal, *masseter*, *buccinator*, and pterygoid muscles are supplied exclusively by the small or muscular division of the fifth pair of nerves. It was originally shown by Palletta,* and afterwards more pointedly by Bellingeri, that this small or muscular division of the fifth pair is distributed to these muscles; and though it receives filaments from the automatic, involuntary, or large portion of the fifth pair, it is chiefly occupied in regulating the motions of elevation of the lower jaw. Palletta had already observed that this portion might be sympathetically or idiopathically affected by *trismus;* and in this view he is followed by Bellingeri. It would have been more physiologically accurate to say, that irritation applied to this nerve, to its roots or origins, or to its branches or filaments, or to any part of its neurilemma will be, according to the ordinary laws of nervous irritation and action, followed by spasmodic motions, generally tonic, in the muscles to which its branches are distributed. It it impossible to doubt that this is the true cause of those cases of *trismus* or locked jaw, without general tetanic affection, which take place in hysteria, epilepsy, slight cases of apoplectic seizure called cataphora, and similar affections of the nervous system.

I may further at the same time observe, that though *trismus* is very generally to be regarded as a mere part and symptom of tetanus, yet in general, and more especially in such cases as the present, it ought to be regarded as a symptom of cerebral and

* J. B. Palletta, de Nervis Crotaphitico et Buccinatorio, Mediolani, 1784.

spinal irritation. We may indeed in this respect distinguish tetanic symptoms into two sorts or varieties, viz. cerebral tetanus or *trismus*, and spinal tetanus or *emprosthotonos* and *opisthotonos*. In the former case we are induced, by the most conclusive anatomico-physiological arguments, to believe that the irritation is most commonly seated in cerebral nerves. In the latter case, on the other hand, all the known facts collected by various credible authorities, and, above all, the arguments adduced in the learned and instructive commentary of Charles Speranza, Professor of Special Therapeutics and Clinical Medicine in the Ducal University of Parma, lead us to infer that the irritation is very generally seated in the roots, trunks, branches, or filaments of spinal nerves.* In the present case it appears to me to have indicated cerebral irritation, either directly, or indirectly, by exciting through the Vidian nerve the small or muscular portion of the fifth pair.

A proof still more decided of the existence of cerebral irritation was afforded by the mental derangement which this young woman exhibited. This took place shortly after the appearance of the *trismus*, viz. on the 28th of June, and presented the usual characters which are observed in the excited forms of *meningitis*. These were greatly augmented muscular strength, much restlessness and sleeplessness, and even a reckless disregard to self-preservation, with much mental irritability. It is further a singular pathological fact, that, at this period, when the irritation seemed either to extend or be transferred to the brain, the palsy went off, and the patient recovered the use of the limbs. This, it must be allowed, looks more like metastasis than extension of morbid action, and seems to indicate that the congestive state which succeeded the irritation of the spine had passed, in its incipient, nascent, or irritative form, to the brain, or at least to its membranes, and was then the cause of the restlessness, sleeplessness, delirium, and other marks of mental derangement.

This state continued from the 28th of June to the 12th of July, when the acute delirium and sleeplessness went off, but was succeeded by a species of dogged sullen obstinacy and wilfulness, in which the patient would do nothing but what she chose, together with loss of power in the limbs, similar to that which she had previously presented. This, therefore, was neither a termination nor a solution of the disease, but rather another form of it. As for the two weeks from the 28th of June to the 12th July, it seemed to consist principally in an acute or subacute irritation of the cerebral membranes, so now when that af-

* Anno Clinico-Medico Compilato da Carlo Speranza Gia. I. R. Medico Provinciale nel Regno Lombardo Veneto, &c. Aggiunto un Commentario sul Tetano. Parma, 1825.

fection had subsided, it appeared to assume the old character of chronic congestion of the brain and spinal chord, or investments. And it must be remembered, that during the whole of this period, the cerebral *trismus* or the irritation of the motor branch of the fifth pair continued.

The latter order of symptoms continued about twenty days longer, or till the 4th of August. On the 1st of August, when I saw her with Mr Cockburn, she presented the symptom of sullen obstinacy and wilfulness, and required to be flattered and humoured like a child. The jaw was firmly fixed; the temporal and masseter muscles especially were rigid and hard; and the contraction of the buccinators gave a peculiar expression to the countenance. The senses of vision and hearing, however, were correct, and she was perfectly conscious of what was going on around her. She had no command over her limbs, especially those of the lower extremities; and required to be lifted and placed in the position in which she wished to be.

This state, however, was now giving way; and on the 4th of August she presented the first symptoms of mental self-possession, and at the same time began to feel that she had some command over the muscles of the lower extremities. This improvement might be justly regarded as the indication of a solution of the meningeal affection, both in the brain and spinal chord, the amendment in the mental faculties being the result of the subsidence of the morbid irritation in the former part of the nervous system, and the recovery of the command over the muscles of the lower extremities being the consequence of the abatement of the disorder in the spinal meninges and chord.

The progressive improvement in these two symptoms, the relaxation of the spasmodic closure of the temporal, *masseter*, and pterygoid muscles, and the subsequent appearance of the uterine secretion on the 8th of August, denoted the complete disappearance of the congested state of the cerebro-spinal meningeal vessels, and the consequent irritation of the nervous matter of the brain and spinal chord.

On the exact seat and extent of this Irritation, it is extremely difficult to specify any positive inferences. It appears, however, most consistent with the usual phenomena of nervous affections, and with the laws by which they are regulated, so far as these are known, to infer, that the irritative action was seated chiefly in the *meninges* or investments of the cerebro-spinal system, and did not penetrate to any depth in the substance of that system. My reasons for taking this view of the case are the following. *First*, the loss of motion was only temporary, and was confined to the lower extremities. Had the irritation affected the substance of the brain deeply, it would have produ-

ced permanent loss of motion, or an apoplectic seizure, with more or less affection of the external senses, and the memory and intellect. *Secondly*, another reason which seems to show that the disorder was confined to the membranes and the surface of the brain is the existence of delirium with *trismus*, rather than a comatose state, with relaxation of the muscles. From the phenomena of fever, *meningitis*, and similar disorders, in which we know that the morbid state is confined chiefly to the vessels of the membranes, it seems most reasonable to think that in the case of C. Ferguson, the disorder was in like manner seated chiefly in, if not confined to, the membranes. In short, there is reason to think from the symptoms presented, that they depended on a congested state of the vessels of the cerebral and spinal investments, irritating but not compressing the nervous matter.

I have in the foregoing remarks frequently employed the term Irritation, without perhaps attempting to define it with sufficient accuracy; and in extenuation of this, I might plead the usual example of pathological observers, who too often use this term in a great number of rather vague significations. It would take me much beyond the limits, within which I must confine these remarks, were I to enter into an inquiry, such as the subject deserves, to show the proper sense in which this term ought to be applied. I shall merely observe that by the term Irritation, as applied to the parts of the nervous system, is meant a state induced by *stimuli*, or irritants, mechanical, chemical, or physiological, in which the natural properties are unduly and unnatu rally roused, yet without giving rise to the process of inflammation or the formation of morbid products, and consequently without destroying the compressibility, sensibility, and conducting and regulating powers of the nervous system. These powers are suspended and perverted, in consequence of the nervous matter being unduly and perhaps irregularly irritated or excited; and if the irritation were either so powerful, or so long continued, as to induce inflammation, it cannot be doubted, that morbid products would be formed, and that the organization of the affected part of the nervous system would be so much destroyed, as to be afterwards incapable of performing its proper functions.

In cases of the kind now under consideration, the irritation appears to have been partly mechanical, partly physiological. An usual quantity of blood within the vessels of the cerebral and spinal *meninges*, moving not with natural rapidity, in all probability from diminished reducent power in the veins, would give rise to all the symptoms under which the patient laboured so long and so successively. This undue quantity of blood, and its slow or impeded motion would undoubtedly constitute a mechanical species of irritation; but its action on the substance of the brain

and spinal marrow, and the effects therein induced, must be physiological. In its operation, however, it is to be observed, that the peculiar, and, as I may term it, the pathognomonic character of irritation, is not to extinguish or abolish action, but to render it irregular,—to increase it above the normal standard in one respect, and bring it below that standard in another. Thus in the case of Christina Ferguson, while the levators of the jaw presented excessive action, the depressors and the muscles of the lower extremities generally presented diminished power. Of this irregularity we see daily examples in the case of diseases of the nervous system, and especially in the anomalous symptoms which they present. Sometimes even we find, as in cases of hysteria, a state of sopor or insensibility to external impressions, associated wtih the increased and irregular action of irritation.

Among other cases of this anomaly of action, I think the following, which came under my care within the last ten days, a useful example.

Alexander Dodds, a young man of 19, was brought to the Royal Infirmary about ten in the evening of the 18th August, in a state of insensibility to external impressions and presenting occasional attacks of convulsive motions of the muscles of the upper extremities, with rigidity of those of the body so complete, that he was carried by the head and heels without flexion of the trunk. The jaws were half closed, and the temporal and masseter muscles were rigid. Two persons who accompanied him, stated, that he had been found on the floor in a state of insensibility, with spasmodic contraction of all the voluntary muscles; and that he had been blooded to the extent of twenty-four ounces without relief.

The fits of convulsive motion came on by spastic drawing and contraction of the muscles of the superior extremities, which were extended involuntarily backwards and above the head with clenching of the fists. Then came spastic rigidity of the muscles of the trunk and lower extremities, drawing them also backwards, and rendering the whole body as rigid as a board. The muscles of the abdomen were hard and collected into masses; and the calves of the legs were drawn into hard knots. The lower jaw was not completely closed upon the upper, and remained apart about the sixth of an inch; but in that position it was firmly and immovably fixed. The tongue was completely paralyzed.

Upon his admission twelve ounces more blood were drawn from the arm, upon which he became a little calmer, and the spasms seemed to undergo a little relaxation. A purgative enema was also administered, and brought away some dark-co-

loured excrement, but without affording much alleviation of the symptoms. The spasms, however, having recurred in an aggravated form, the head was shaved, fifteen leeches were applied, and four drops of croton oil were dropped through the teeth upon the tongue. Cold was also applied to the head, and sinapisms to the calves of the legs.

About an hour and a-half after the administration of the croton oil, vomiting came on, and he rejected much mucus and some portions of half-digested potatos, after which the spasmodic motions were less violent.

During the night he continued quite unconscious of what was going on around him, took neither food nor drink, and never spoke the greater part of the night, and was occasionally violently contorted by the spasmodic motions.

When I saw him next day at noon on the 19th August, he was still unconscious and insensible to external impressions. The eyes were forcibly and involuntarily drawn upwards, and the pupil, though large, was sensible to the stimulus of light. The countenance was flushed, the temporal arteries distended, and the jaws were firmly closed, with continuing hardness of the temporal and masseter muscles. The pulse was 80 to 96, tense and throbbing. The action of the heart was preternaturally strong, and its beat was performed with a clear strong bellows sound, and heard over the greater part of the chest. The chest sounded well, and respiration was natural.

While I was with him he had a very violent attack of the spasmodic motions, in which the arms and legs were writhed violently and irresistibly in the direction of flexion, and the whole trunk was incurvated upon itself. This was in short a fit of emprosthotonos, which lasted for about five minutes.

I directed twenty-five ounces of blood to be drawn from the arm, and if this did not moderate the motions, fifteen ounces to be drawn from the occipito-cervical region by means of cupping; the enemata to be repeated, and as soon as the jaw was capable of being relaxed, six grains of calomel with three drops of croton oil to be conveyed into the œsophagus; and a solution of six grains of antimony in four ounces of water was ordered to be given. Only fifteen ounces of blood were drawn from the arm, in consequence of some indications of faintness coming on, and the face being much paler. But the full amount was taken from the head by cupping, and the cold affusion was used. The bowels also had been once moved.

He spent a better night, and spoke once, and next day the pulse was down to 80, the countenance was natural, and the eyes obedient to the voluntary motions. He was in other respects in a state of quietism, but unconscious and with little sensibility

to light, or other external impressions. There had been one attack of the spasm at half-past eleven P. M., but none afterwards. The jaw could be depressed, though not freely. The action of the heart was calmer, and free from the loud clear bellows sound. The most remarkable symptom, however, about this man was the complete loss of laryngeal voice. When he attempted to speak it was only in a whisper, and with the lips, tongue, and teeth, but not through the larynx.

He was ordered six grains of calomel, three grains of extract of colocynth, and three drops of croton oil, with the free administration of the antimonial solution of six grains to four ounces of water.

Next day he was completely conscious and sensible to all impressions, nor had there been any return of the spasmodic motions, and he could freely depress the lower jaw. The voice, however, was in the same state as before, and he could not speak unless in a whisper. He was ordered four ounces of the cathartic mixture.

On the 22d, he was completely conscious and sensible, but had not recovered the laryngeal voice, and answered questions slowly, as if from some impediment in speaking, with the lips, tongue, and teeth. The pulse was natural, and the tongue, which could now be protruded, was clean. Three motions had taken place. As some appetite had returned, he was allowed common diet. But as there was reason to believe that the want of the laryngeal voice was occasioned by some affection of the laryngeal nerves, I directed a large blister to be applied to the occipito-cervical region, and extending forward on each side of the neck. The colocynth pill was ordered to prevent accumulation.

Next day, on the 23d, when the blister had risen well, laryngeal voice began to return about seven hours after the first application of the blister. After this the voice became gradually natural; and under the use of laxative medicine to empty the bowels periodically, he quickly recovered his natural strength and appearance.

This case, in short, presented all the characters of some violent irritation of the nervous centres, and unless this had been removed by the prompt employment of efficient remedies, it must have gone on to fatal effusion, or terminated in chronic *meningitis* with insanity and palsy.

For this attack no cause could be assigned. The young man when he recovered his senses declared that he never before had any similar attack. He also stated, that it came on with acute pain of the forehead and temples; that then he lost recollection, and must have fallen down where he was found; and that he had no remembrance of any thing till he found himself in the Infir-

mary two days after. If the attack seemed like tetanus it must have been idiopathic; for careful inspection could tracc no wound or injury adequate to produce so serious an affection. The patient, as a baker, was accustomed carrying heavy loads on the head; and this was believed by several gentlemen who saw the case, to be the most probable mode of accounting for the origin of the attack. On this, however, it is impossible to form any positive conclusion.

The complete loss of laryngeal voice was in this case a curious and important symptom. So far as could be discovered it could not depend upon the affection of any part of the larynx, but seemed rather to be induced by the state of thc laryngeal nervcs. The paralytic state of the tongue, the vomiting, the peculiar sound in the beat of the heart, and finally, the absence of laryngeal voice when he recovered consciousness, all indicatcd an affection of the organs of the tenth pair or pneumogastric nerves, and the glosso-pharyngeal; and perhaps the greatest degree of irritation, amounting almost to congestion, was seated in the membranes covering these nerves.